THE WEB OF LEARNING

Call for Applicants:

The Science Education Team of Los Alamos National Laboratory is committed to the improvement of science education. Through a variety of enhancement programs, we have helped students and teachers increase not only their **science and mathematics content knowledge**, but also their **critical thinking and problem solving skills**.

The Web of Learning program involves using the Internet, specifically the World Wide Web, to distribute and continually upgrade educational materials among a community of students and educators. The goal of the Web of Learning is to disseminate first-rate educational materials by making a comprehensive set of 4th – 12th grade mathematics, and eventually, science tutorials available on the web.

We wish to invite you to participate in a tutorial writing contest for high school mathematics as part of the Web of Learning, which involves a team of at least one teacher and 2 -5 students. The material for the contest is included in this mailing and can also be accessed at the following url:

http://set.lanl.gov/programs/learning/CONTESTS/CONTESTS.htm

The materials include an entry form and a sample tutorial that student/teacher teams can use as a guideline for assembling their mathematics tutorials.

Teachers and students will enter as teams. Submissions need not be web ready. The sample tutorial mentioned above includes a PDF file showing how that tutorial might have been submitted as a text document. Eventual winners will have their material on the web site. Web ready material will be accepted but must be submitted on a disk and can be no larger than 1.2 Mb in size. Whether or not the submission is web ready will have no bearing on the judging.

The text, which will be the primary source for these tutorials, is Algebra Through Problem Solving, which can be found on the Web at the following URL:

http://set.lanl.gov/programs/learning/Resources/mabooks.htm

The text is available in two formats, interactive and PDF. In the list of topics blow, INT refers to page numbers in the interactive version and PDF refers to page numbers in the PDF version. The topics are limited to the following:

1. **Expanding $(a + b)^n$ by the distributive law:**
(INT page 2 and PDF bottom of page 1 through middle of page 2.)

2 a) **Show how results of #1 leads to Pascal Triangle:**

(INT bottom of page 2 through page 3 and PDF middle of page 2 through top page 3.)

2 b) **Show how the results of #1 leads to the FOIL method.**
(This is not in this text, but it is in many high school algebra texts. It is frequently taught as a rule to be memorized rather than as an immediate and logical consequence of the distributive law.)

3. **The vocabulary of binomial expansion and notation for n choose k and the relationship of these to the Pascal Triangle:**
(INT bottom of page 3 through page 4 and PDF bottom 2/3 of page 3 through the top 1/3 of page 4.)

4. **Binomial expansion as an identity to solve problems:**
(Example 1 (page 4 - PDF Version or page 5 - web site version) and problems 11-13 on page 6 (both versions).)

The tutorials should be developed for students in mathematics at the high school level. Entries are limited to a single entry per team per concept, so one team may enter 5 times if highly motivated. Winning entries will be posted on the web site, and winning participants will receive an HP Graphing calculator.

We see this as an exciting opportunity for teachers and students to work collaboratively in developing new skills that can expand their horizons. Although the focus for the Web of Learning mathematics tutorial contest is on mathematics content, the program is open to all disciplines. Thus, we are accepting applications from any interested teacher committed to enhancing the educational opportunities of their students through mathematics topics.

Please review the guidelines in the enclosed packet and return your entry (1 per team per topic area) to our office by **May 14, 1999**.

Please feel free to call me at (505) 667-1919 with any questions or concerns.

Sincerely,

Bill Robertson
(robertson@lanl.gov)
Program Coordinator